



REMARKS

This is a full and timely response to the nonfinal Office Action of September 20, 2004.

Reconsideration and allowance of the application and all presently pending claims are respectfully requested.

Upon entry of this Response, claims 1-7, 9-27, and 53-96 are pending in this application. Claims 1, 6, 11, and 53-58 are directly amended herein. Claims 8 and 28 have been canceled. Claims 59-95 are newly added. The prior art made of record has been considered, but is not believed to affect the patentability of the presently pending claims. Applicants believe that no new matter has been added.

CLAIMS

The Applicants affirm the election of group I, claims 1-29 and 53-58.

Claim Objection

The Applicants have canceled claim 28 so the objection should be withdrawn.

Claim Rejections

The 35 U.S.C. 112, second paragraph, rejection of claims 1, 8, 11, 12, and 14-24 should be withdrawn because the Applicants have amended claims 1 and 11 to overcome each rejection, while claim 8 has been canceled.

Claims 1 and 53-38

Claims 1 and 53-58 are rejected under 35 U.S.C. §102(b) as purportedly being anticipated by Polak *et al.* (U.S. Patent 6,379,622). Claim 1 is rejected under 35 U.S.C. §102(e) as purportedly being anticipated by Thayer *et al.* (U.S. Patent 6,528,323). Claim 1 is rejected under 35 U.S.C. §102(b) as purportedly being anticipated by Ching *et al.* (U.S. Patent 5,120,643). Claim 1 is rejected under 35 U.S.C. §102(e) as purportedly being anticipated by Speakman *et al.* (U.S. Patent 6,503,831). Claim 1 is rejected under 35 U.S.C. §102(b) as purportedly being anticipated by Tyagi *et al.* (U.S. Patent 6,103,831). Claim 1, as amended, reads as follows:

1. A structure, comprising:

a nanospecies having a first characteristic and a second detectable characteristic, wherein a second detectable energy is produced corresponding to the second detectable characteristic upon exposure to a first energy; and

a porous material having the first characteristic and a plurality of pores, ***wherein the first characteristic of the nanospecies and the first characteristic of the porous material are the same, where the interaction of the first characteristic of the nanospecies with the first characteristic of the porous material cause the nanospecies to interact with the porous material and become disposed in the pores of the porous material, and wherein the first characteristic is selected from a hydrophobic characteristic, a hydrophilic characteristic, an electrostatic characteristic, and combinations thereof.***

(Emphasis added). The Applicants traverse the rejections noted above and submit that the rejection of amended claim 1 under 35 U.S.C. §102 (b) and (e) in view of Polak *et al.*, Thayer *et al.*, Ching *et al.*, Speakman *et al.*, and Tyagi *et al.*, respectively, should be withdrawn because each, individually or in combination, do not disclose, teach, or suggest the highlighted portions in amended claim 1 above. In particular, Polak *et al.*, Thayer *et al.*, Ching *et al.*, Speakman *et al.*, and Tyagi *et al.* teach that the first characteristic is a biological characteristic as noted in the Office Action. Thus, Polak *et al.*, Thayer *et al.*, Ching *et al.*, Speakman *et al.*, and Tyagi *et al.* each, individually or in combination,

do not disclose, teach, or suggest, at least the limitations highlighted above in amended claim 1, and therefore, each rejection to claim 1 should be withdrawn.

In addition, the rejection of amended claims 53-58 should be withdrawn for the same reasons as amended claim 1.

Claims 2-7 and 9-27

The Applicants respectfully submit that pending dependent claims 2-7 and 9-27 include every feature of independent claim 1 and that the relevant patents noted above as well as Bawendi *et al.* (U.S. Patent 6,251,303), Nei *et al.* (U.S. Patent 6,468,808), Effros *et al.* (U.S. Patent 6,642,538), and/or Damle *et al.* (J. Mater. Chem., 2000, 10, 1389-1393) fail to disclose, teach, or suggest, individually or in combination, at least the features of claim 1 highlighted hereinabove. Thus, pending dependent claims 2-7 and 9-27 are allowable over the prior art of record. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

New Claim 59

New claim 59 reads as follows:

59. A structure, comprising:

a hydrophobic coated semiconductor quantum dot, wherein the coating includes a hydrophobic compound coated on the semiconductor quantum dot, wherein the hydrophobic coated semiconductor quantum dot has a second detectable characteristic, and wherein a second detectable energy is produced corresponding to the second detectable characteristic upon exposure to a first energy; and

a silica material having a hydrocarbon-derivatized surface and having a plurality of pores, ***wherein the surface of the silica material is hydrophobic***, wherein the hydrophobicity of the hydrophobic coated semiconductor quantum dot and the hydrophobicity of the silica material cause the hydrophobic coated semiconductor quantum dot to interact with the silica material and become disposed in the pores of the silica material.

(Emphasis Added) The Applicants respectfully submit the Polak *et al.*, Thayer *et al.*, Ching *et al.*, Speakman *et al.*, and Tyagi *et al.*, Bawendi *et al.*, Nei *et al.*, Effros *et al.*, and/or Damle *et al.* fail to disclose, teach, or suggest, individually or in combination, at least the combination of features of new claim 59 highlighted hereinabove.

Claims 58-73

The Applicants respectfully submit that pending dependent claims 58-73 include every feature of independent claim 59 and that the relevant patents noted above fail to disclose, teach, or suggest at least the features of claim 59 highlighted hereinabove. Thus, pending dependent claims 58-73 are allowable over the prior art of record. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

New Claim 74

New claim 74 reads as follows:

74. A structure, comprising:

a nanospecies having a first characteristic and a second detectable characteristic, ***wherein the nanospecies is selected from a semiconductor quantum dot, a metal nanoparticle, and a magnetic nanoparticle***, and wherein a second detectable energy is produced corresponding to the second detectable characteristic upon exposure to a first energy; and

a porous material having the first characteristic and a plurality of pores, ***wherein the porous material is made of a material selected from a metal, a silica material, ceramic, zeolite, and combinations thereof***, wherein the first characteristic of the nanospecies and the first characteristic of the porous material are the same, wherein the interaction of the first characteristic of the nanospecies with the first characteristic of the porous material cause the nanospecies to interact with the porous material and become disposed in the pores of the porous material, and ***wherein the first characteristic is selected from a hydrophobic characteristic, a hydrophilic characteristic, and an electrostatic characteristic***.

(Emphasis Added) The Applicants respectfully submit the Polak *et al.*, Thayer *et al.*, Ching *et al.*, Speakman *et al.*, and Tyagi *et al.*, Bawendi *et al.*, Nei *et al.*, Effros *et al.*, and/or Damle *et al.* fail to disclose, teach, or suggest, individually or in combination, at least the combination of features of new claim 74 highlighted hereinabove.

Claims 75-96

The Applicants respectfully submit that pending dependent claims 75-96 include every feature of independent claim 74 and that the relevant patents noted above fail to disclose, teach, or suggest at least the features of claim 74 highlighted hereinabove. Thus, pending dependent claims 75-96 are allowable over the prior art of record. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

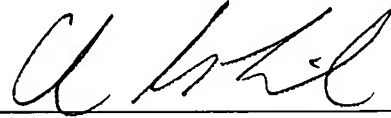
CONCLUSION

The Applicants respectfully request that this application and all presently pending claims be allowed to issue. If the Examiner has any questions or comments regarding Applicants' response, the Examiner is encouraged to telephone Applicants' undersigned counsel.

Respectfully submitted ,

**THOMAS, KAYDEN, HORSTEMEYER
& RISLEY, L.L.P.**

By:



Christopher B. Linder; Reg. No.: 47,751

100 Galleria Parkway, N.W.
Suite 1750
Atlanta, Georgia 30339
(770) 933-9500